

“Meth Mouth, Medicine & Myths”

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Distractions can cause probs!



Time To Take Off



Methamphetamine is:

- **methamphetamine hydrochloride.**
- A sympathomimetic agent that exerts. greater stimulating effects on the CNS than amphetamine (hence street name, "speed").
- Widely used by drug abusers through oral & IV ("mainlining") routes.
- When converted to the freebase (meth) it can be smoked like crack cocaine & referred to by various street names.



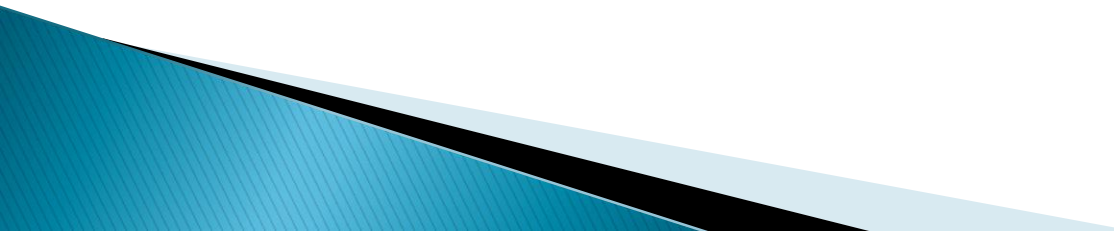
Methamphetamine is:

- An amine derivative of amphetamine, $C_{10}H_{15}N$, used in the form of its crystalline hydrochloride as a CNS stimulant, both medically & illicitly.
- Pharmaceutical referred to as methylamphetamine or desoxyephedrine.
- A synthetic psychostimulant drug used primarily for recreational purposes, but is sometimes Rx for ADHD & narcolepsy under the brand name Desoxyn.
- MA-highly psychologically addictive. Large doses of methamphetamine can result in a strong feeling of euphoria at the expense of physical fatigue & a strong "come-down/crash" as the drug's effect wears off.

Designer Drug Examples

- Methamphetamine
- China White Heroin = fentanyl & meperidine derivatives
- Ecstasy = methylenedioxymethamphetamine
- Nexus = bromodimethoxyphenylethylamine
- Designer Cannabinoids

NOTE: When these Designer Drugs first appeared on the streets many were quasi-legal because no laws had been created that banned their specific chemical structures.



Pseudoephedrine is:

- Found in both Rx & OTC products used to relieve nasal or sinus congestion caused by common cold, sinusitis, hay fever, & other resp. allergies. It can also be used illegally to produce **methamphetamine**.

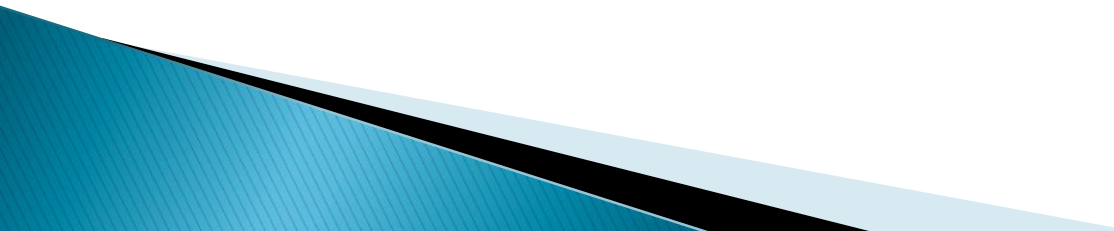


Methamphetamine HCl= Desoxyn = Truxton (5, 10, 15mg) Schedule II

- Tx of Attention Deficit Disorder with Hyperactivity (not used much), Oral: 5 mg 1-2 times/day, may ^ by 5 mg increments weekly until optimum response is achieved, usually 20-25 mg/day
- Narcolepsy?
(Truxton - generic) 5mg, 4X/d
30 day supply = \$24.00

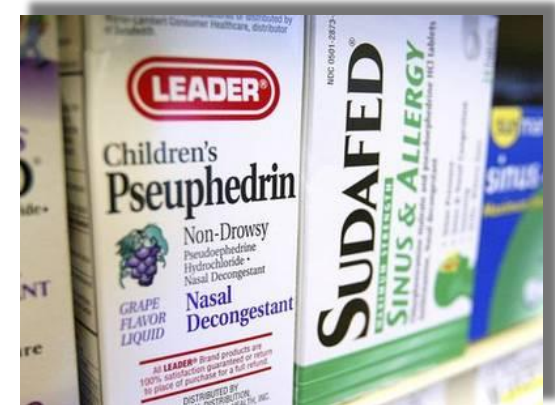
(Desoxyn – Brand name) 5mg, 4X/d
30 day supply = \$142.39

Don't Know Much Hx (Herman's Hermits)

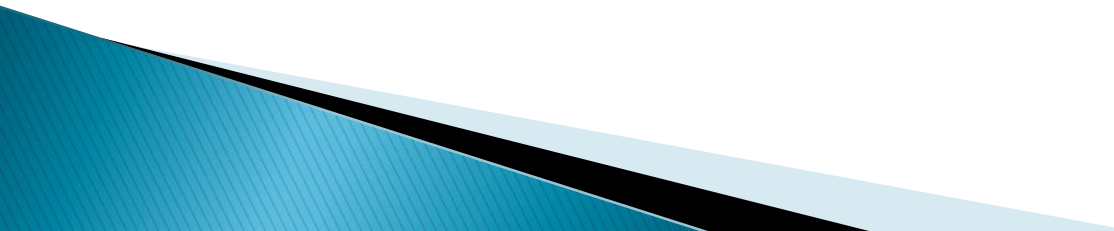
- 1st synthesized from ephedrine in Japan in early 1900s
 - Widely used by Japanese, German, & American soldiers to combat military fatigue during WW II
 - 50's & 60's several amphetamine products were dev. for the purposes of wt. loss, NRG boosts, & ^ alertness.
 - Also used in OTC inhalers & nasal sprays
 - 60's millions of Rx's mostly to women
- 

History (cont.)

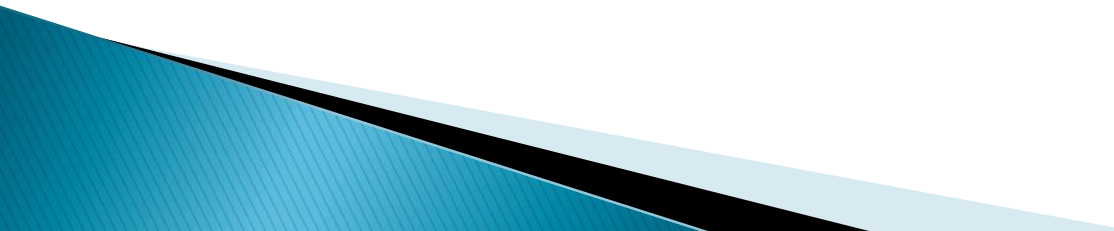
- The Combat Methamphetamine Epidemic Act of 2005 has been included in the Patriot Bill signed by the President on 3/9/06. The Act would ban OTC sales of cold medicines that contain ingredients that are commonly used to make **methamphetamine** such as pseudoephedrine.
- Became effective 9/30/06



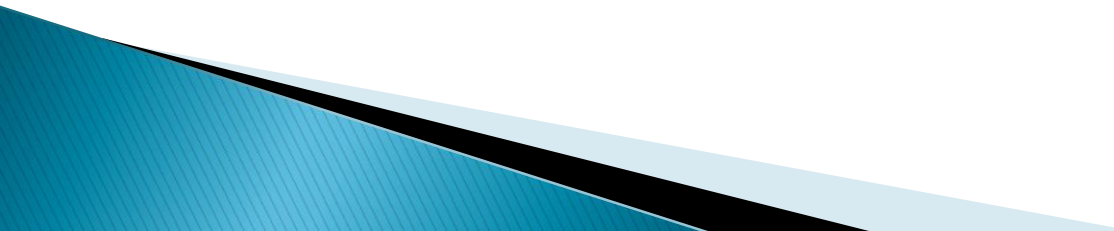
Pseudoephedrine Purchase- Combat Meth Act

- Have to show photo ID
 - Sign a sales log when you buy anything with pseudoephedrine
 - 3.6 grams pure ephedrine or pseudoephedrine/day
 - 9.0 grams/30 days
 - Misdemeanor punishable by up to a yr. in jail
 - Sellers must keep products behind the counter or in a locked case & register on-line with the U.S. Attorney General
 - Keep personal information about purchasers for at least 2 yrs.
 - KY state law requires that purchasers of these products be at least 18 y/o & stipulates that sellers must be pharmacists or pharmacy techs
- 

Why is Meth Attractive?

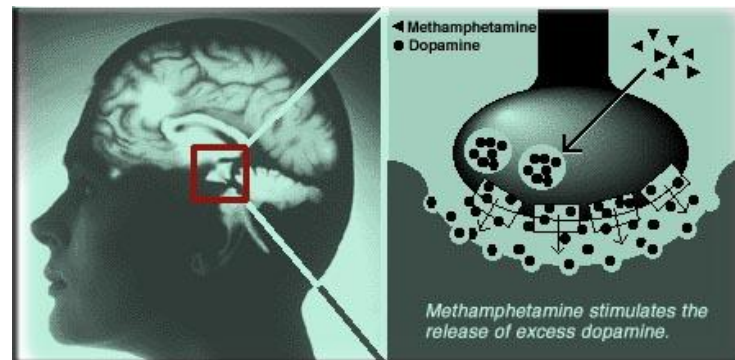
- Cheap
 - High profit margin
 - Easy to get
 - Powerful
 - **^ sexual stamina!!!!**
 - Eases pain of depression or loneliness
 - Feel invulnerable
 - Heightened activity (^ NRG)
 - Reduces hunger (weight loss)
 - Temporarily promotes a sense of well-being
 - Peer pressure (everybody is doin' it)
- 

Mechanism of Action (MOA)

- Alters levels of CNS neurotransmitters
 - ^ release & blocks reuptake of dopamine, norepinephrine & serotonin in multiple areas of brain primarily nucleus accumbens (desire center), prefrontal cortex & striatum (movement)
 - Nucleus accumbens-part of the corticostriatal circuit involved in evaluation of reward, emotion, & aversiveness=(Causing avoidance of a thing, situation, or behavior by using an unpleasant or punishing stimulus)
 - Neurodegeneration & Neurotoxicity
- 

MOA (cont.)

- **Dopamine** is about **joy**. **Serotonin** is oil in the **motor of life**. Keeps things running smoothly mood wise. **Norepinephrine** is about **focus**. Taking in CHO boosts Serotonin levels.
- 3 major neurotransmitters that give us our mood.



I'm a dope for dopamine

- Dopamine-neurotransmitter found in regions of the brain that regulate movement, emotion, motivation & pleasure
- MA = similar in size, shape & chem. structure to dopamine resulting in the release of large amts. of dopamine & lesser amts. of serotonin & norepinephrine
- Involved in reward system
- All stimulants & most drugs of addiction ^ the release of dopamine
- Cocaine = 400% ^ dopamine than normal
- MA = 1500% ^ dopamine than normal
- Reward/Pleasure cycle (McVinney, 2005)

MOA (cont.)

- MA causes release of stored NE, blocks NE uptake & acts as a false transmitter in CNS
- Results = over stimulation of SNS w depletion of NE, dopamine, & alters conc. of other CNS neurotransmitters such as serotonin, acetylcholine & glutamate
- MA ^ ATP demand = ^ in carb. & starches

Gettin' HI

- ^ dopamine = feelings of pleasure & euphoria, **^^^ sexual drive**, 10 ft tall & bullet proof, “hold my beer & watch this”
- ^ norepinephrine = alertness & anti-fatigue
- reduces serotonin causing cognitive impairment & eventual depression



Nucleus Accumbens

- Nucleus accumbens - central role in reward circuit. Operation based chiefly on 2 essential neurotransmitters: dopamine, which promotes desire, & serotonin, whose effects include satiety & inhibition.
THEORY: Drugs ^ the prod. of dopamine in nucleus accumbens, while reducing that of serotonin.

Nucleus accumbens does not work in isolation. Maintains close relations with other centers involved in the mechanisms of pleasure, & in particular, with the **ventral tegmental area (VTA)**.







METH-KILLS.COM



Crystal Meth Routes Of Entry

- Smoked in a glass pipe - powder or rock - 7-10 sec. (immediately creates euphoria)
 - mouth, lung, throat, & bronchial irritation & damage
- Ice Pipe-U of Indiana
- Snorted-hot-railing - 7-10 sec.
 - membrane & tissue damage inside nose
 - sharing ^ chance of contracting viral hepatitis
- Injected IV or IM (“works”, “skin popping”, “muscling”, slamming) melted rock- 5-20 sec. (immediate)
 - vein shrinkage, damage, collapse
 - abscesses, endocarditis, septicemia, swollen injection site, risk of HIV & Hep B&C through needle sharing & ^ risk of overdosing
 - ^ risk of HIV & hepatitis



Crystal Meth Routes of Entry (cont.)

- Snorted - powder – 3-5 min.
- Booty bump (hooping) - 3-5 min.
 - Serious damage to anal tissue & membranes
 - may lead to intestinal cramping, bowel probs.
 - ^ risk of HIV, STD's & Hep B
- Eaten or swallowed ("parachuted") - 5-30 min.
 - minimal tissue damage & longer onset time
 - no reduction in long term psychological effects
- Skin Popping - injecting in muscle or SQ-3-5minutes
 - extremely painful, abscesses, wound botulism, tetanus, necrotizing (a.k.a. flesh eating disease) fasciitis



Why Ask Why?

- Anterior teeth supplied by the anterior & middle superior alveolar branches > infraorbital artery > external carotid artery & supply the nasal mucosa
- Posterior teeth supplied by the posterior descending branch of the sphenopalatine artery & ascending palatine branches of facial artery
- Meth is lipid soluble & diffuses rapidly across the blood brain & placental barriers









Meth Ingredients & Method

- Ether, Benzene, Freon, Lithium, Paint Thinner, Muriatic, & Sulfuric Acid, Coleman Camping Fuel, Matches, Toluene, Xylene, Gun Cleaner,
- Anhydrous ammonia (corn)
- Red Phosphorus (found on matchboxes), Lye
- Pseudoephedrine cold med. (included in a variety of cold medicines including Sudafed, Nyquil & others) Sudafed, Actifed, Liquid Fire Drain Cleaner, Iodine, Red Devil Lye

**Corrosive &
causes skin
burns!**





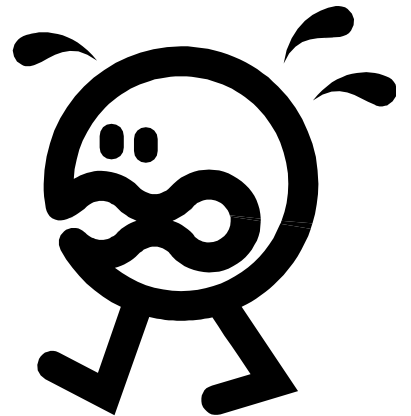


Meth Mouth Sx



Cracked Teeth

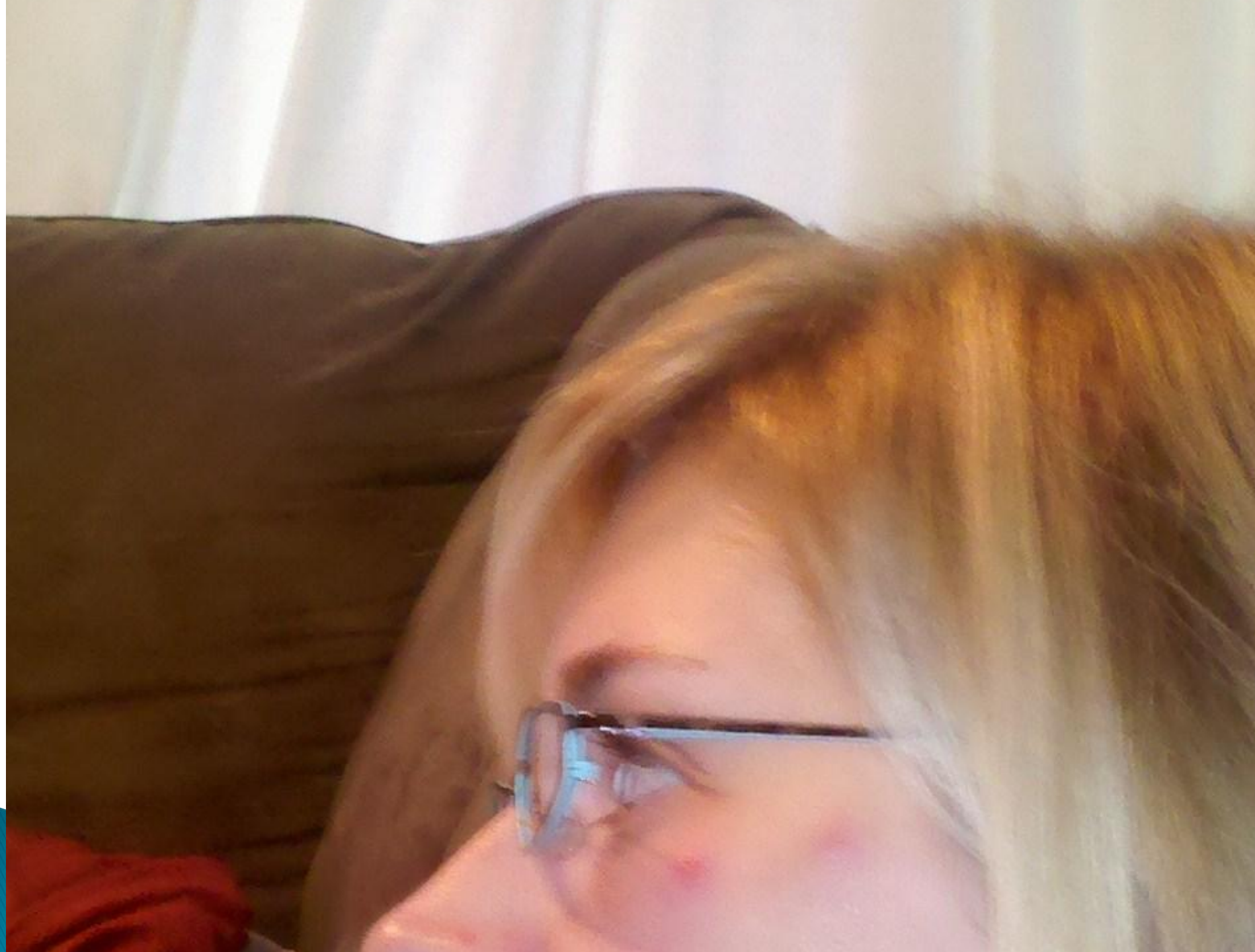
Anxious & Nervous



Crank Crickets







**PICKING FOR BUGS UNDER YOUR SKIN ISN'T NORMAL.
BUT ON METH IT IS.**



METH

NOT EVEN ONCE.

MONTANA METH PROJECT

MethProject.org

MONTANA METH PROJECT

1-888-366-6384

A photograph of a person's back, showing severe skin damage from meth use. The skin is covered in large, raw, red sores and numerous smaller scabs. The person's hands are visible, with red, inflamed fingers, and they are touching the damaged areas. The background is dark, making the skin damage stand out.

**SCABS, HALLUCINATIONS, AND BODY SORES.
THEN THINGS REALLY GO DOWNHILL.**



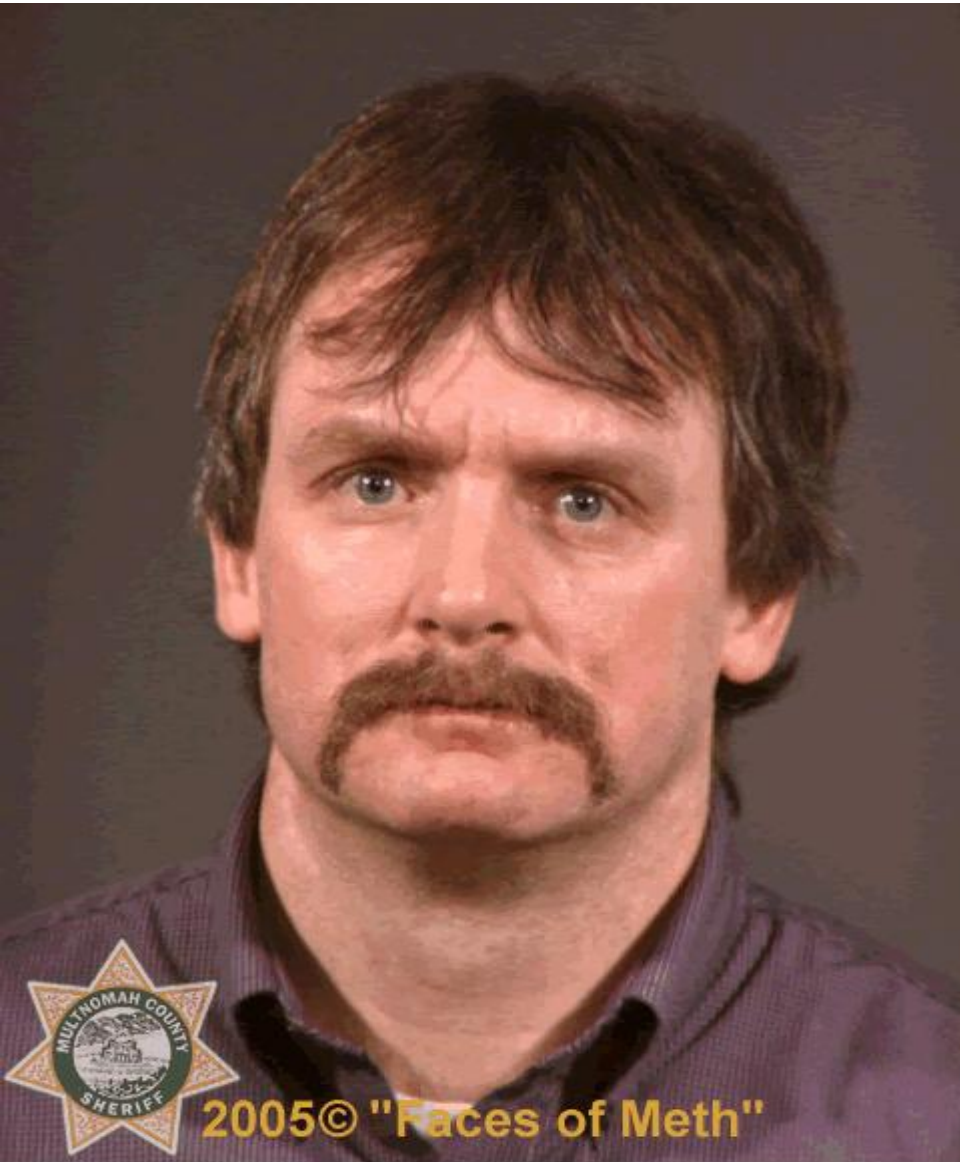
NotEvenOnce.com

Guess Who-What Profession



Theresa

Faces Of Meth



Joseph

Problems Treating The Patient

- “I’ll burn that bridge when I get there.”
- Hypertension with anesthetics
- Inability to pay for services
- Auxiliary drugs





Red Flags for Professionals (cont.)



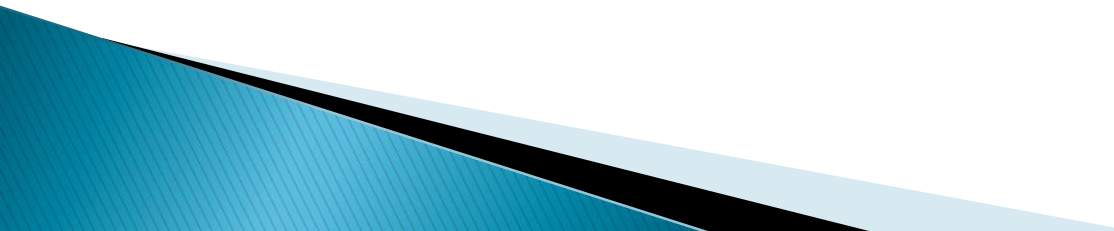
(often seen in ER-ED)

- Characteristic skin lesions
- Paranoid behavior
- Unexplained choreiform motor activity.
(irregular, jerky movements of muscles or groups of muscles)
- Anxiousness
- Depression
- Dilated pupils
- Extreme moodiness

Dealing With Tweakers

- Tweakers = People who abuse Meth regularly
- Often behave or react violently
- May not have slept in 3-15 days & may be irritable & paranoid
- If also using alcohol or other drugs, the danger may be ^
- Tweaker craves more Meth, but no dosage will help recreate the 1st rush
- Frustration may lead to unpredictable behavior & violence
- Often participate in spur-of-the-moment crimes, such as purse snatching or burglaries, domestic disputes & auto accidents
- They may at 1st appear to be normal. A closer look will reveal eye movement 10X faster than normal, a voice with a slight quiver & jerky movements

6 Steps–Dealing With Tweakers

1. Keep your distance. Coming too close can be perceived as threatening.
 2. No bright lights. The tweaker is paranoid & bright lights may cause them to react violently.
 3. Slow your speech, lower your voice.
 4. Slow your movements. The tweaker is paranoid & may misunderstand your movements.
 5. Keep your hands visible, or they may feel threatened & become violent.
 6. Keep the tweaker talking. A tweaker who falls silent can be extremely dangerous. Silence often means that his paranoid thoughts have taken over reality, & anyone present can become part of the tweaker's paranoid delusions.
- 

Got My Doubts?

- 40% of meth abusers have severe oral health prob.
- People who smoke or snort meth have fewer dental problems.
- Those who inject meth have more severe dental health problems.
- The researchers write that dentists can help with early detection and intervention of meth abuse by detecting severe problems in otherwise healthy patients. The study was funded by NIDA.

Source: Shetty, V., et al. "[The Relationship Between Methamphetamine Use and Increased Dental Disease](#)." *The Journal of the American Dental Association* March 2010.





Guidelines

1. Complete comp. oral exam, w dental & medical Hx
2. Attempt to educate about (-) effects
3. Refer to MD's or drug-counseling
4. Preventive measures, fluorides, remineralization products & Periogard & Biotene



Guidelines (cont.)

5. Encourage pt. to drink water or artificially sweetened drinks instead of sugar-containing beverages.
6. Cautious w local anesthetics, sedatives, general anesthesia or nitrous oxide & Rx narcotics bec. of potential drug interaction
7. Take opportunities to educ. patients about the risks assc. w the use of MA & other illicit drugs.

Psychological

- Insomnia
- Aggressive behavior
- Paranoia
- Incessant conversations
- Decreased appetite
- Increased alertness
- Irritability
- Slurred speech
- Dizziness
- Confusion
- Hallucinations
- Obsessive behaviors
- Depression
- Panic attacks

Systemic

- Hyperthermia
- Malnutrition
- Impaired immune system

Circulatory

- High blood pressure
- Vessel damage in brain
- Clotting and stroke

Heart

- Chest pain
- Rapid heart rate
- Heart attack

Liver

- Damage

Eyes

- Dilated pupils

Mouth

- Grinding of teeth

Skin

- Sweating
- Numbness

Respiratory

- Shortness of breath

Muscular

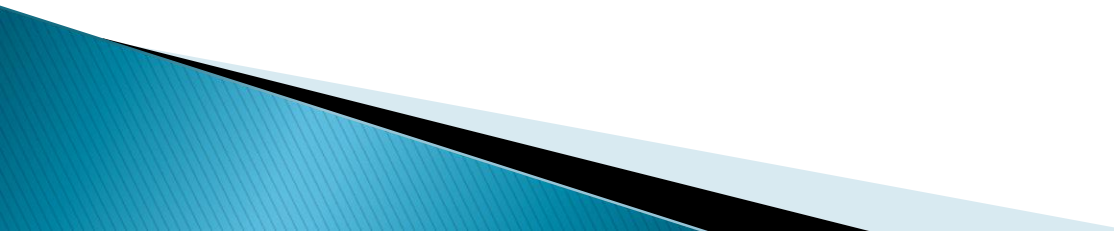
- Jerky movements
- Increased activity
- Convulsions
- Loss of coordination

Kidneys

- Damage



Kidneys–Good Bye

- The kidneys filter blood by excreting liquid waste. Meth constricts the blood vessels of the kidneys so that less urine is excreted. As a result, toxic wastes are allowed back into the body. Toxic blood in the brain can cause headaches & mental confusion. Long term use may cause bladder infections & inflamed kidneys.
- 

Liver-Change The Filter Please

- The liver breaks down meth into simpler components. The liver however, cannot break down large amounts of toxic substances at the same time. Meth competes with other poisons in the body awaiting removal. When this happens, toxic substances are allowed into the blood stream which can cause dangerous drug interactions & overdose. Dangers include heart attack, stroke, coma, and/or death.



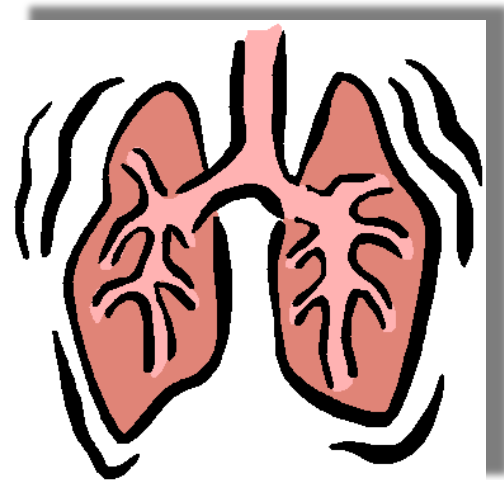
Digestive System

- Meth slows down the digestive tract as well as the breakdown of food.
- This results in feeling less hungry & thirsty. Dangers include extreme anorexia, constipation, diarrhea, dehydration, malnutrition, & cramping.



Lungs

- Ingredients used to make meth constrict &/or block the lungs blood vessels. Long-term use can permanently reduce the amount of air the lungs are able to take in.



My Heart ❤️ Is Attacking Me

- When injected into the blood stream, meth travels directly to the heart causing a high feeling within about 30 sec. Physical effects can include constriction of veins & arteries which reduces blood flow & ^ BP, ^ body TEMP., faster heartbeat, & possible blood clotting.
- Other dangers of use include risk of *arrhythmia* (heart out of rhythm), heart attacks, & cardiovascular collapse—all potentially deadly effects.

They Call It ICE

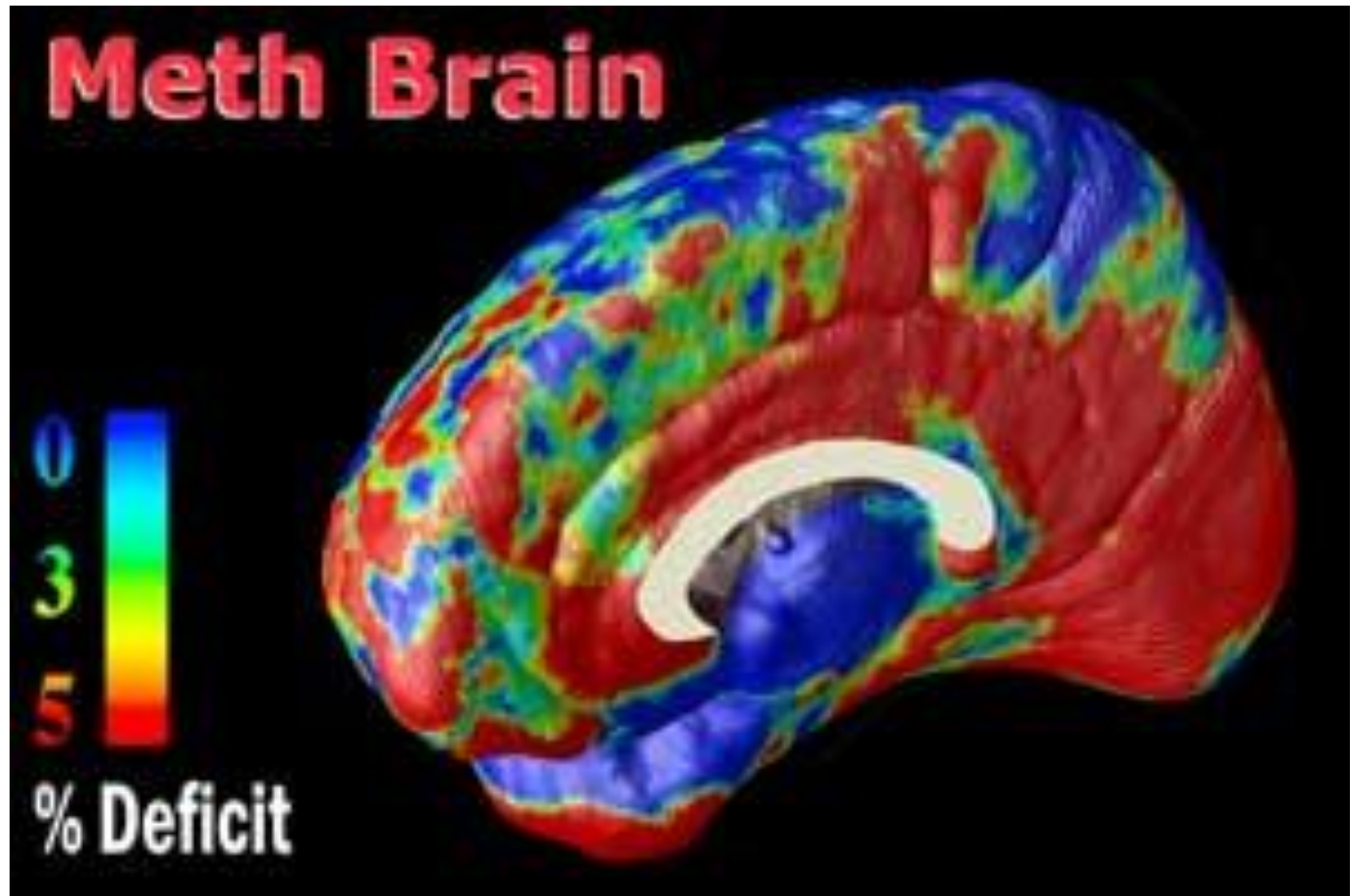
It's a raging ***FIRE***

- METHYL MEAN
- MARY MELLOW



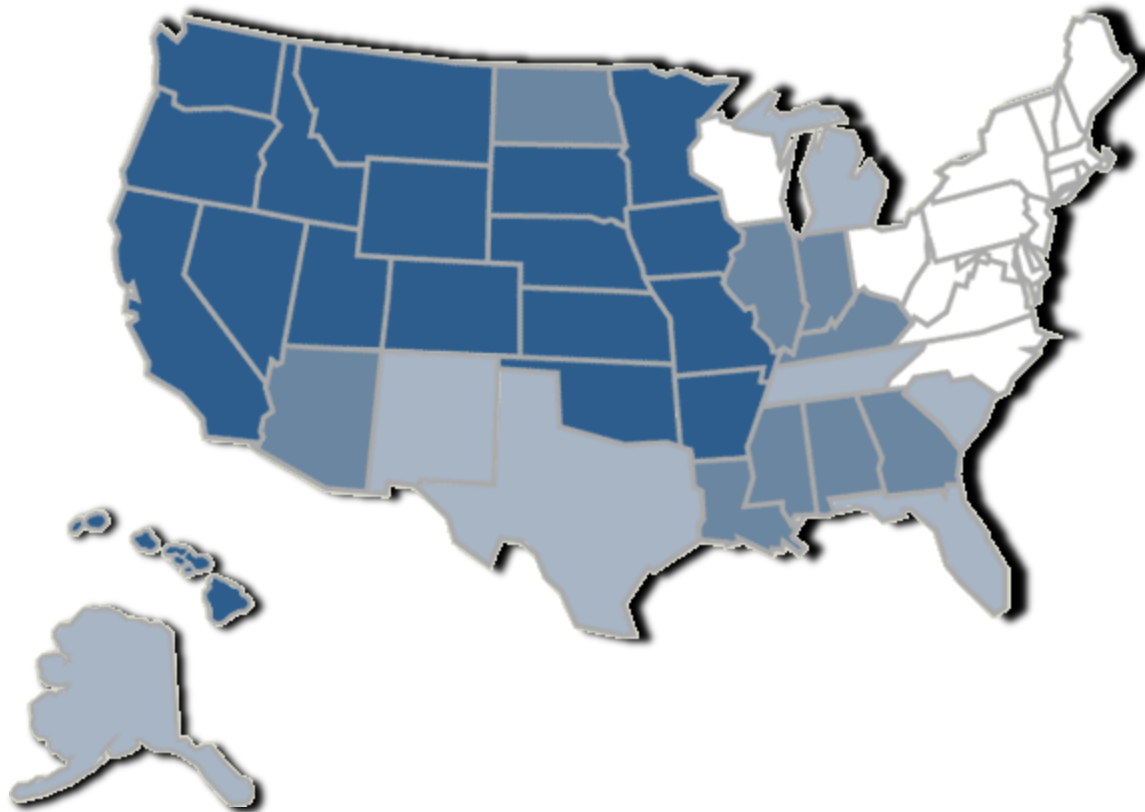
BRAIN-Eroding the Mind

Brain scan of a meth abuser: areas in red show the highest damage, with the blue shades marking areas with the least.



of meth users in rehab per 100,000
state residents '03, last yr. for which
data is available for all 50 states.

< than 5 = white, 5 to 15, 16 to 50,
51 +

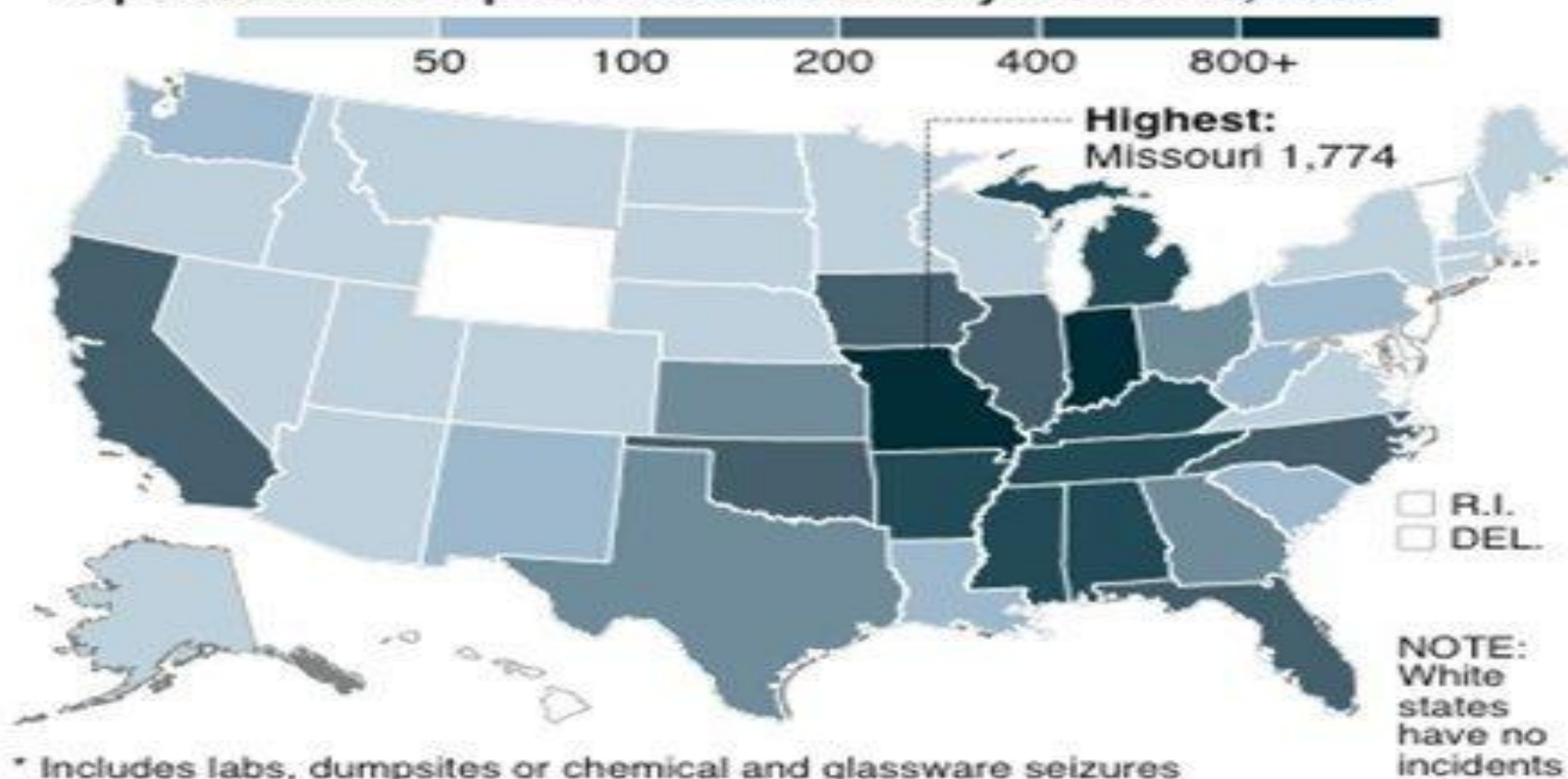


Meth lab seizures trend higher

Methamphetamine lab incidents are on the rise again after pseudoephedrine restrictions were established late in 2005. In 2009, Missouri again led the nation in meth-related seizures.

2009	10,064
'08	7,485
'07	6,233
'06	8,486
'05	13,403

Reported methamphetamine laboratory incidents, 2009*



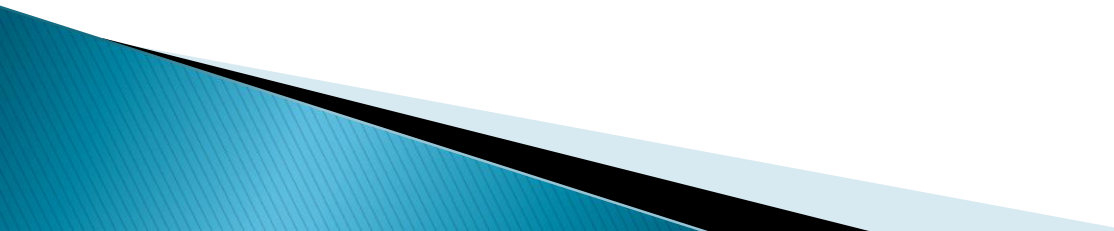
Meth Central

In '02, 46% of the 15,676 methamphetamine lab incidents were reported in 9 sites located in middle America:

- (1) Missouri (2,788)
- (2) Iowa (862)
- (3) Kansas (763)
- (4) Oklahoma (595)
- (5) Tennessee (560)

- (6) Illinois (551)
- (7) Arkansas (398)
- (8) Kentucky (372)
- (9) Nebraska (272)

Ups & Downs of High School


- In 2004, 6.2% of high school seniors had reported lifetime use of methamphetamine, statistically unchanged from 2003
 - Lifetime use was measured at 5.3% of 10th grade students
 - 3.9% of 8th-graders
 - 8th-graders reported significant decreases in lifetime, annual, & 30-day use
- 

Children

- Social workers & law enforcement officers have rescued over 15,000 children from meth labs



Physiological descriptors of meth users

- Body odor (possibly a chemical smell)
- Irregular heartbeat 
- Chest pain
- Elevated temp. & excessive sweating
- Shortness of breath
- Sores on arms & face (meth crickets)
(jail house meth – scabs, urine & feces)



Stages Of Meth Use

Rush

- Duration = effects in 5-10 min, last 4-16
- Signs
 - VS = BP & P ^
 - Prolonged sense of euphoria
 - ^ NRG, focus, confidence, sexual prowess
 - Feelings of desirability
 - False confidence & power
 - Argumentative

Binge

- Duration = 3-15 **DAYS!!**
- Signs
 - Hyperactive mentally & physically
 - Avoids sleep for days
 - Can become paranoid & delusional

Stages Of Meth Use (cont.)

Tweaking

- Duration = 4-24 days
- Signs
 - Paranoid & delusional & sometimes violent behavior
 - Can self-medicate w/ other drugs or alcohol to ease the bad feelings. Mood chemicals in brain depleted. “Power naps”

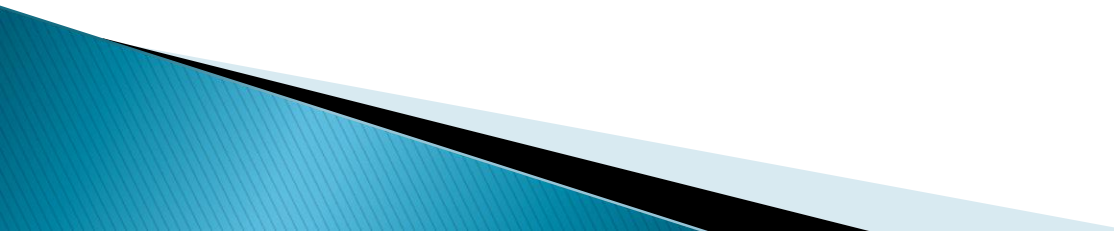
Crash

- Duration = Days
- Signs = Sleep sometimes lasts for days

Withdrawal

- Duration = Varies
 - Signs = Depression, restlessness & can be suicidal
- 

Meth In The Neighborhood?

- The mixing of unusual chemicals in a house, garage or barn by persons not involved in the chemical industry.
 - A small trailer or outbuilding with a generator operating in the middle of the night.
 - Late night secretive activity in a rural/farm area.
 - The possession of chemical glassware by someone not involved in the chemical field.
 - Fans in the windows running when it's cold outside.
 - People smoking outside instead of inside.
- 



May the road rise up to meet you,
May the wind be ever at your back
May the sun shine warm upon your face
And the rain fall softly on your fields
And until we meet again, May God hold
you in the hollow of his hand

